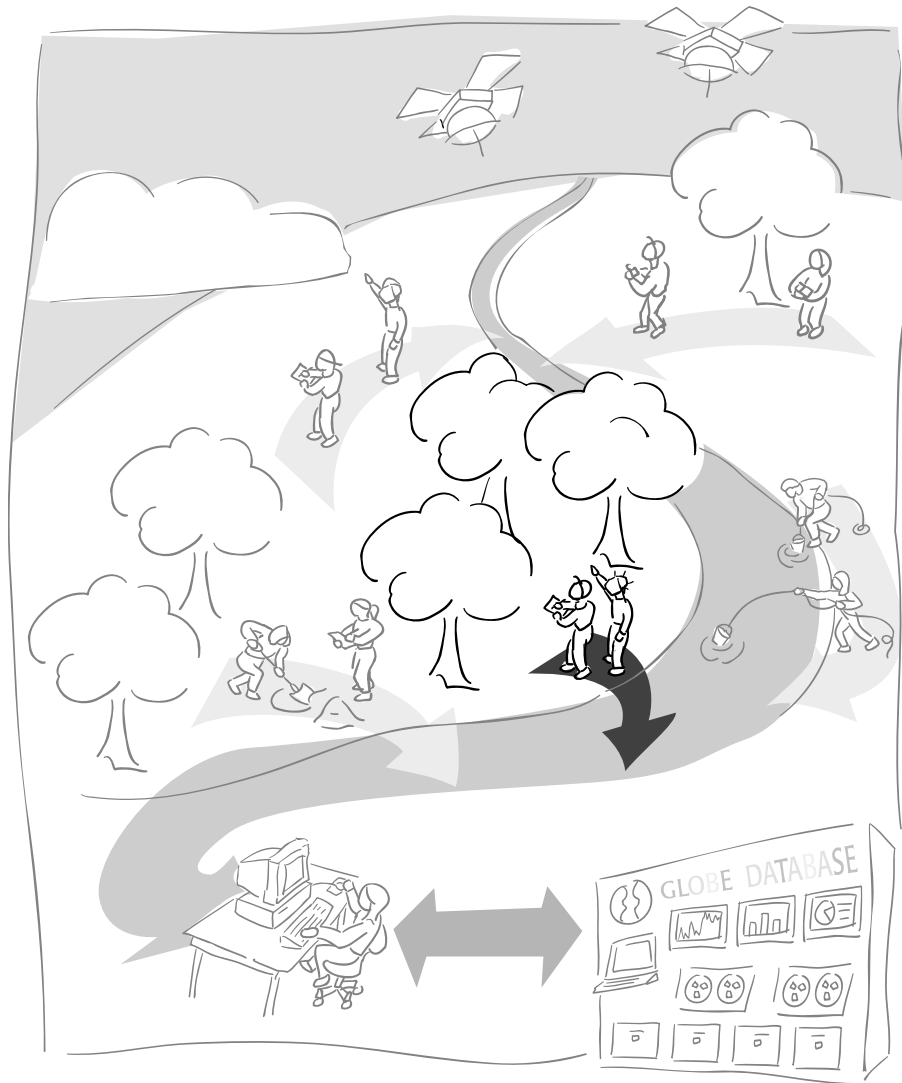


# Land Cover/Biology Investigation



A GLOBE® Learning Investigation



# Land Cover/Biology Investigation at a Glance



## Protocols

### *Land Cover Sample Site Protocol*

Data collected once for each site: GPS location, photographs, land cover classification.

### *Biometry Protocol*

Data collected once to determine land cover class of Land Cover Sample Sites or more often to study changes in biomass over time: canopy cover and ground cover, tree, shrub and/or graminoid height, tree circumference, graminoid biomass, dominant and co-dominant vegetation.

### *Manual Land Cover Mapping Protocol and Computer-aided Land Cover Mapping Protocol*

Perform once to create a land cover type map of your GLOBE Study Site and then update as desired.

### *Land Cover Change Detection Protocol*

Perform once to create a map that illustrates changes that have occurred over time (period of a few years) in your GLOBE Study Site.

## Suggested Sequence of Activities

**Note:** Certain Learning Activities are desirable prior to implementing Protocols.

Read the *Introduction*, especially *Measurement Logistics* and *Suggested Methodology*.

Perform *Getting to Know Your Satellite Imagery* and *GLOBE Study Site Learning Activity*.

Make a densiometer and clinometer (see *Investigation Instruments*).

Review how to pace and use a compass, densiometer, clinometer and tape measure (see *Investigation Instruments*).

Practice the *GPS Protocol* (see *GPS Chapter*) and the *Biometry Protocol*.

Choose appropriate Land Cover Sample Sites within your Study Site (review *Sample Site Selection and Set-up*).

Perform the *Site Seeing Learning Activity* - introduces systems concepts.

Perform the *Leaf Classification Learning Activity* - introduces the concepts of classification.

Practice using the MUC System to classify land cover.

Perform *Land Cover Sample Site Protocol* at each Sample Site.

Perform the *Odyssey of the Eyes Learning Activity* - introduces remote sensing.

Perform either *Manual Mapping: A Tutorial for the Beverly, MA Image* (from the *Appendix*) if you will be doing a manual map or the *Unsupervised Clustering Tutorial* (from the MultiSpec CD) if you will be doing a computer-aided map.

Perform either *Manual* or *Computer-aided Land Cover Mapping Protocol* using your GLOBE Study Site satellite image.

Perform the *Bird Beak Accuracy Assessment Learning Activity* - introduces accuracy assessment.

Perform the *Accuracy Assessment Tutorial* from the *Appendix* to analyze the accuracy of your land cover type map.

Perform the *Land Cover Change Detection Protocol*.

Perform the *Discovery Area Learning Activity* - uses the satellite images and maps students create.

*Using GLOBE Data to Analyze Land Cover Learning Activity* - relates land cover data to other GLOBE investigation measurements.

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## **Protocols**

Sample Site Selection and Set-Up
Investigation Instruments
Land Cover Sample Site Protocol
Biometry Protocol
Manual Land Cover Mapping Protocol
Computer-aided Land Cover Mapping Protocol*
Land Cover Change Detection Protocol*
Fire Fuel Ecology Protocol*

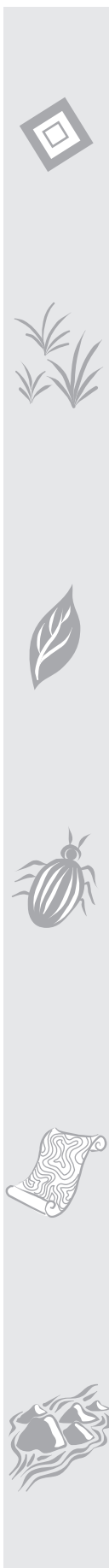
## **Learning Activities\***

Getting to Know Your Satellite Imagery and GLOBE Study Site*
Site Seeing*
Leaf Classification*
Odyssey of the Eyes*
Bird Beak Accuracy Assessment*
Discovery Area*
Using GLOBE Data to Analyze Land Cover*

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\* See the full e-guide version of the *Teacher's Guide* available on the GLOBE Web site and CD-ROM.



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